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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|---------------------------|
| 10/608,085 | 06/30/2003 | Yong-Sup Hwang | 8733.873.00-US | 8100 |
| 30827 | 7590 | 09/20/2004 | EXAMINER | |
| MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006 | | | | CHOWDHURY, TARIFUR RASHID |
| ART UNIT | | PAPER NUMBER | | |
| | | 2871 | | |

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---------------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/608,085 | HWANG ET AL. | |
| | Examiner Tarifur R Chowdhury | Art Unit 2871 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-8, 11, 12, 17-24, 27 and 28 is/are rejected.
- 7) Claim(s) 9, 10, 25, 26 is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 30 June 2003 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1-8, 11, 12, 17-24, 27 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Chae, US 2003/0127649.**

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

5. Chae discloses (page 3, paragraph 0034 – page 4, paragraph 0041) and shows in Figs. 4 and 5A-5E, an array substrate and a method of forming the array substrate for use in a liquid crystal display device, comprising:

- a gate electrode (160), a gate line (162) and a gate pad electrode (164) on a substrate (100), wherein all of the gate electrode, the gate line and the gate pad electrode have a double-layered structure including a first barrier metal layer and a first copper layer;
- a gate insulation layer (150) on the substrate covering the double-layered gate electrode(160), gate line (162) and gate pad electrode (164);
- an active layer (170a) and an ohmic contact layer (170b) sequentially formed on the gate insulation layer (150) and over the gate electrode (160);
- a data line (174) on the gate insulation layer (150) crossing the gate line (162), source (176) and drain electrodes (178) contacting the ohmic contact layer (170b), and a data pad electrode (173) on the gate insulation layer, wherein all of the data line, the source and drain electrodes, and the data pad electrode have a double-layered structure including a second barrier metal layer and a second copper layer;
- a passivation layer (152) formed on the gate insulation layer (150) to cover the double-layered data line (174), source (176) and drain (178) electrodes, and data pad electrode (173), wherein the passivation layer

(152) has a drain contact hole (182) exposing the drain electrode (178) (Fig. 5D), a gate pad contact hole (180) exposing the gate pad electrode (164), and a data pad contact hole (184) exposing the data pad (173) (Fig. 4); and

- a pixel electrode (188), a gate pad terminal (190) and a data pad terminal (192) all of which are formed of a transparent conductive material on the passivation layer (152).

Accordingly, claims 1 and 17 are anticipated.

As to claims 2 and 18, Chae also shows in Fig. 4 that the gate electrode (160) extends from the gate line (162) and the gate pad electrode (164) is at the end of gate line (162).

As to claims 3 and 19, Chae further shows in Fig. 4 that the source electrode (176) extends from the data line (174), wherein the drain electrode (178) is spaced apart from the source electrode (176), and wherein the data pad electrode (173) is at the end of the data line (174).

As to claims 4 and 20, Chae also shows in Figs. 4 and 5E, that the pixel electrode (188) is disposed in a pixel region defined by the crossing of the gate and data lines, wherein the pixel electrode contacts the drain electrode (178) through the drain contact hole (182), wherein the gate pad terminal (190) contacts the gate pad (164) through the gate pad contact hole (180), and wherein the data pad terminal (192) contacts the data pad (173) through the data pad contact hole (184).

As to claims 5-8 and 21-24, Chae discloses that the first barrier metal layer is one of titanium (Ti), molybdenum (Mo), chromium (Cr) and has a good adhesive characteristics to the substrate (page 3, paragraph 0034). Further, it can also be seen from Figs. 5A-5E that the second barrier metal layer prevents the reaction between the second copper layer and both the active layer and the ohmic contact layer.

As to claims 11, 12, 27 and 28, Chae also discloses that the gate insulating layer and the passivation layer is made of an inorganic material selected from a group consisting of silicon nitride and silicon oxide (page 3, paragraph 0037).

Allowable Subject Matter

6. Claims 9, 10, 13-16 and 28-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R Chowdhury whose telephone number is (571) 272-2287. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

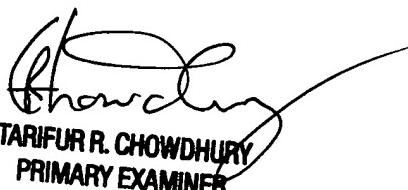
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2871

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRC

September 11, 2004



TARIFUR R. CHOWDHURY
PRIMARY EXAMINER